

WHAT IS CLAIMED IS:

Sub A17

1. A light source device comprising:
a plurality of laser diodes;
a temperature sensor provided in the vicinity of
said plurality of laser diodes;
a control loop for controlling the temperatures of
said plurality of laser diodes according to an output from
said temperature sensor to thereby control the oscillation
wavelengths of said plurality of laser diodes; and
means for compensating temperature control
conditions for said laser diodes other than a reference
laser diode selected from said plurality of laser diodes,
according to a change in temperature control condition for
said reference laser diode.

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2. A light source device according to claim 1,
wherein the oscillation wavelengths of said plurality of
laser diodes are different from each other, and said
plurality of laser diodes are selectively driven.

3. A light source device according to claim 1,
wherein said temperature sensor comprises a thermistor.

4. A light source device according to claim 1,
wherein said change in said temperature control condition
for said reference laser diode comprises a result of
comparison between an initial set temperature and a latest
set temperature, whereby a deterioration of said

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confd } temperature sensor reflects the compensation of said temperature control conditions of said laser diodes other than said reference laser diode.

5. A light source device according to claim 4, wherein said reference laser diode is driven so as to become lower in temperature than said laser diodes other than said reference laser diode.

6. A light source device according to claim 1, wherein said plurality of laser diodes are arranged in an array, and said reference laser diode is positioned at an end of said array.

7. A light source device according to claim 1, wherein said plurality of laser diodes are arranged in an array, and said temperature sensor is positioned near the center of said array.

8. A light source device according to claim 1, wherein said control loop comprises an optical filter optically coupled to said plurality of laser diodes and having a transmittance substantially periodically changing with wavelength, and means for controlling the temperatures of said plurality of laser diodes so that the intensity of transmitted light through said optical filter becomes constant.

Sub A27 } 9. A wavelength control device for a light source device having a plurality of laser diodes, comprising:

a temperature sensor provided in the vicinity of said plurality of laser diodes;

a control loop for controlling the temperatures of said plurality of laser diodes according to an output from said temperature sensor to thereby control the oscillation wavelengths of said plurality of laser diodes; and

means for compensating temperature control conditions for said laser diodes other than a reference laser diode selected from said plurality of laser diodes, according to a change in temperature control condition for said reference laser diode.

sub B1 > 10. A wavelength control device according to claim 9, wherein said temperature sensor comprises a thermistor.

11. A wavelength control device according to claim 9, wherein said change in said temperature control condition for said reference laser diode comprises a result of comparison between an initial set temperature and a latest set temperature, whereby a deterioration of said temperature sensor reflects the compensation of said temperature control conditions of said laser diodes other than said reference laser diode.

12. A wavelength control device according to claim 9, wherein said control loop comprises an optical filter optically coupled to said plurality of laser diodes and having a transmittance substantially periodically changing

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with wavelength, and means for controlling the temperatures of said plurality of laser diodes so that the intensity of transmitted light through said optical filter becomes constant.

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13. A light source device comprising:

a plurality of laser diodes;

a first temperature sensor provided in the vicinity of said plurality of laser diodes;

a second temperature sensor provided at a position becoming lower in temperature than a position where said first temperature sensor is provided when driving said plurality of laser diodes;

a control loop for controlling the temperatures of said plurality of laser diodes according to an output from said first temperature sensor to thereby control the oscillation wavelengths of said plurality of laser diodes; and

means for compensating a detected temperature by said first temperature sensor according to a detected temperature by said second temperature sensor.

sub B1 > 14. A light source device according to claim 13, wherein the oscillation wavelengths of said plurality of laser diodes are different from each other, and said plurality of laser diodes are selectively driven.

15. A light source device according to claim 13,

7 wherein each of said first and second temperature sensors comprises a thermistor.

16. A light source device according to claim 13, wherein said control loop comprises an optical filter optically coupled to said plurality of laser diodes and having a transmittance substantially periodically changing with wavelength, and means for controlling the temperatures of said plurality of laser diodes so that the intensity of transmitted light through said optical filter becomes constant.

17. A light source device according to claim 16, wherein:

said second temperature sensor is provided in the vicinity of said optical filter;

said light source device further comprising means for controlling the temperature of said optical filter according to an output from said second temperature sensor so that the temperature of said optical filter is maintained constant.

18. A wavelength control device for a light source device having a plurality of laser diodes, comprising:

a first temperature sensor provided in the vicinity of said plurality of laser diodes;

a second temperature sensor provided at a position becoming lower in temperature than a position where said

first temperature sensor is provided when driving said plurality of laser diodes;

a control loop for controlling the temperatures of said plurality of laser diodes according to an output from said first temperature sensor to thereby control the oscillation wavelengths of said plurality of laser diodes; and

means for compensating a detected temperature by said first temperature sensor according to a detected temperature by said second temperature sensor.

19. A wavelength control device according to claim 18, wherein each of said first and second temperature sensors comprises a thermistor.

20. A wavelength control device according to claim 18, wherein said control loop comprises an optical filter optically coupled to said plurality of laser diodes and having a transmittance substantially periodically changing with wavelength, and means for controlling the temperatures of said plurality of laser diodes so that the intensity of transmitted light through said optical filter becomes constant.

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